

Fire Regime Condition Class (FRCC) Interagency Handbook Reference Conditions

Modeler: Bruce Davenport

Date: 1/10/05

PNVG Code: OKHK3

Potential Natural Vegetation Group: Western Mesophytic Forest (Oak-Hickory Western Mesophytic)

Geographic Area: Occurring under suitable conditions, and typically imbedded in other groups, in areas corresponding to Kuchler types 100 and 111; primarily in the Interior Low Plateau, southern Central Lowland, Ozark Plateaus, and Ouachita physiographic provinces, but also in the loess hills of the northern Coastal Plain. Includes parts of Alabama, Kentucky, Tennessee, Indiana, Illinois, Ohio, Missouri, Arkansas, Oklahoma, and Mississippi

Description: Found on a wide range of topographic positions, including drier sites than mixed mesophytic forests, distribution is nonetheless influenced by local conditions affecting moisture and fertility. Generally, from east to west, that distribution becomes "more and more limited in extent and more dependent on very favorable habitat conditions" (Braun, 1950), i.e., occupies the most mesic sites in the upland landscape. More often oak-dominated, western mesophytic forests may still include almost any of the species associated with mixed mesophytic communities, except yellow buckeye. Again, as with mixed mesophytic, upper canopies are closed, except for mortality or disturbance-induced gaps. "Open" conditions describe a single canopy structure with no developed midstory.

Fire Regime Description: Fire Regime Group III, infrequent, primarily low intensity surface fire with rare mosaic or replacement fire. Mean fire return interval (MFI) is about 35 years with wide year-to-year and within-type variation related to moisture cycles, degree of sheltering, and proximity to more fire-prone types. Anthropogenic fire considered and contributes to within-type MFI variation.

Vegetation Type and Structure

Class*	Percent of Landscape	Description
A: post replacement	10	0-15 years. Sprouts, seedlings, saplings, primarily of major overstory species in gaps created by wind, lightning, insect/disease, and less frequently, fire. Intolerant species (e.g., PRSE, LITU) confined to multiple-tree gaps.
B: mid-seral closed	25	15-79 years. Dominated by young to early mature canopy with some obligate mid and understory species. Closed condition a function of understory/midstory development with at least two layers present dependent on age.
C: mid- seral open	10	15-79 years. Same overstory as B but in a single canopy structure without well-developed midstory.
D: late- seral open	15	80-200+ years. Early to late mature canopy that may exceed 100 feet in height. Dominant overstory species variable by location and stand history. Open condition dependent on absence of multi-layered vertical structure.
E: late- seral closed	40	80-200+ years. Same canopy as D with well developed lower layers containing canopy species and often others confined at those levels.
Total	100	

*Formal codes for classes A-E are: AESP, BMSC, CMSO, DLSO, and ELSC, respectively.

Fire Frequency and Severity

Fire Severity	Fire Frequency (yrs)	Probability	Percent, All Fires	Description
Replacement Fire	476	.0021	8	Occurs in all age classes; somewhat more frequently in younger classes.
Non-Replacement Fire	39	.0259	92	
All Fire Frequency*	36	.028	100	Slightly higher probability in open classes.

*All Fire Probability = sum of replacement fire and non-replacement fire probabilities. All Fire Fire Frequency = inverse of all fire probability (previous calculation).

References

- Braun, E.L. 1950. Deciduous Forests of Eastern North America. Free Press, New York. 596 p.
- Brown, James K.; Smith, Jane Kapler, eds. 2000. Wildland fire in ecosystems: effects of fire on flora. Gen. Tech. Rep. RMRS-GTR-42-vol. 2. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 257 p.
- Bryant, W.S., W.C. McComb, J.S. Fralish. 1993. Oak-hickory forests (western mesophytic/oak-hickory forests). P. 143-201 *in* Biodiversity of the Southeastern United States: upland terrestrial communities, Martin, W.H., S.G. Boyce, and A.C. Echternacht (eds.). Wiley, New York. 373 p.
- Buckner, E.R. 1989. Evolution of forest types in the Southeast. *In* Proceedings: Pine-hardwood mixtures: a symposium on management and ecology of the type. Waldrop, T.A. (ed.) Gen. Tech. Rep. SE-58. Atlanta, GA: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station. 271 p.
- Greenberg, C.H., D.E. McLeod, and D.L. Loftis. 1997. An old-growth definition for western mesophytic and mixed mesophytic forests. Gen. Tech. Rep. SRS-16. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 16 p.
- Hinkle, C.R., W.C. McComb, J.M. Safley, Jr., and P.A. Schmalzer. 1993. Mixed mesophytic forests. P. 203-253 *in* Biodiversity of the Southeastern United States: upland terrestrial communities, Martin, W.H., S.G. Boyce, and A.C. Echternacht (eds.). Wiley, New York. 373 p.
- Schmidt, Kirsten M, Menakis, James P., Hardy, Colin C., Hann, Wendel J., Bunnell, David L. 2002. Development of coarse-scale spatial data for wildland fire and fuel management. Gen. Tech. Rep. RMRS-GTR-87. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 41 p. + CD.
- U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (2002, December). Fire Effects Information System, [Online]. Available: <http://www.fs.fed.us/database/feis/>.
- PERSONAL COMMUNICATION: Bob Dellinger, Mike Schafale and workshop participants (TTRS, June, 2004).

VDDT File Documentation:











